



DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH

ROY COOPER
GOVERNOR

MANDY COHEN, MD, MPH
SECRETARY

DANIEL STALEY
DIRECTOR

Date: June 2, 2017
To: All North Carolina Clinicians
From: Zack Moore, MD, MPH, State Epidemiologist
Subject: **Update on Endemic Arboviral diseases in North Carolina (2 pages)**

Background:

Arthropod-borne viruses (arboviruses) are transmitted to humans primarily through the bites of infected mosquitoes. Most arboviral infections are asymptomatic. For the purposes of surveillance and reporting, clinical illnesses resulting from arboviral infections are categorized into neuroinvasive and nonneuroinvasive disease. Nonneuroinvasive disease manifestations may include headache, myalgias, arthralgia, rash, or gastrointestinal symptoms. Neuroinvasive arboviral infections are usually characterized by acute onset of fever with headache, myalgia, stiff neck, altered mental status, seizures, limb weakness, or cerebrospinal fluid (CSF) pleocytosis.

La Crosse encephalitis (LACE) is the most commonly reported endemic arboviral disease in North Carolina (figures 1, 2). Case presentation, management and outcome have been described for both children and adults. [1,2] Although LACE has been reported across the state, over 75% of all cases are reported from counties in the southwestern region.

Other neuroinvasive arboviral diseases endemic to North Carolina include West Nile virus infection and eastern equine encephalitis, both of which are much less common than LACE. Over the past five years, fewer than 10 cases for each of these diseases have been reported annually.

Reporting:

Per North Carolina law, clinicians are required to report all suspected or confirmed neuroinvasive arboviral diseases to public health by contacting their local health department or by calling the Communicable Disease Branch epidemiologist on call at 919-733-3419.

Chikungunya, dengue, yellow fever, and Zika virus infections are also reportable in North Carolina. These infections are associated with travel to endemic areas and, up to now, local mosquito-borne transmission of these conditions has not been documented in North Carolina. Updates and information about Zika virus are available at <http://epi.publichealth.nc.gov/zika/>.

Diagnosis:

Serologic testing for arboviral infections is offered at no charge from the State Laboratory of Public Health (NCSLPH). The submission form, DHHS 3445, is available at <http://slph.state.nc.us/virology-serology/special-serology.asp>. Early diagnosis of LACE is critical to adapting therapy and eliminating unnecessary treatment and is also important for public health surveillance purposes. MAC ELISA testing is preferred for LACE diagnosis and

is available at the NCSLPH. [3] Serologic testing by the IFA methodology is also available; we encourage providers to collect acute AND convalescent (e.g., after two-three weeks) specimens to confirm diagnosis using this methodology.

Education of patients, prevention of disease:

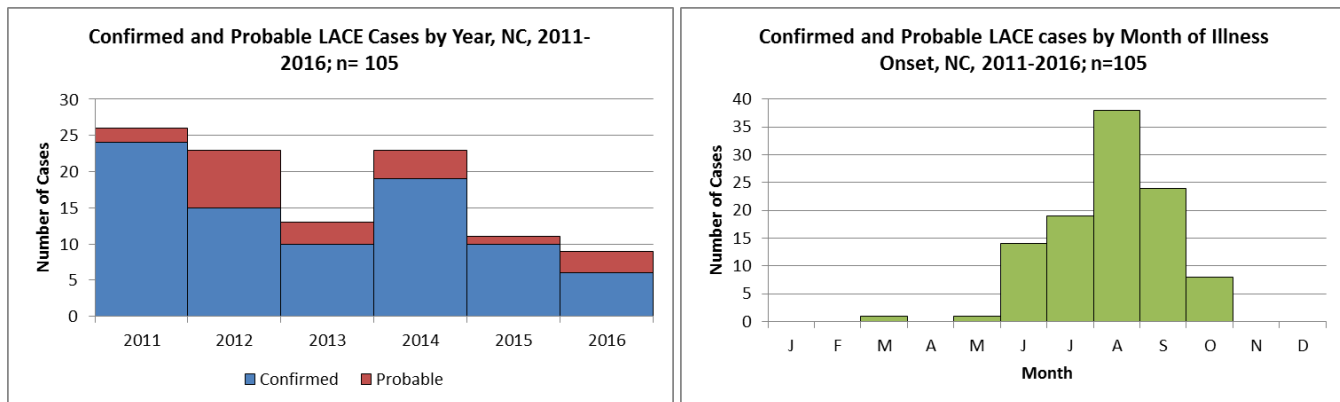
We encourage all clinicians to educate their patients about personal protective measures that can be used to minimize their risk of acquiring these conditions. The Centers for Disease Control (CDC) has excellent resources available at <http://www.cdc.gov/ncidod/dvbid/arbor/index.htm>. There also is updated information on the Division of Public Health’s Communicable Diseases website at <http://epi.publichealth.nc.gov/cd/diseases/arbo.html>

If you have any questions or concerns, please call the Communicable Disease Branch at 919-733-3419.

References:

1. Miller et. al. La Crosse viral infection in hospitalized pediatric patients in Western North Carolina. Hosp Pediatr. 2012 Oct;2(4):235-42.
2. Teleron et. al. La Crosse Encephalitis: An Adult Case Series. Am. J. of Med. 129(8), Pages 881–884
3. Calisher et.al. Serodiagnosis of La Crosse virus infections in humans by detection of immunoglobulin M class antibodies. J Clin Microbiol 1986;23:667-71

Figures 1: Cases of La Crosse Encephalitis Reported in North Carolina, 2011–2016



La Crosse Encephalitis Average Reported Incidence per 100,000 by County, 2011–2015

